rotators 146A-B. In a preferable embodiment, second nonreciprocal rotator 146A rotates by 45 degrees clockwise a component of light passing through it from first optical port 102 to second optical port 106. In another preferable embodiment, second nonreciprocal rotator 146B rotates by 45 degrees counter-clockwise a component of light passing through it from first optical port 102 to second optical port 106. The component then pass through second beam displacer/combiner 150, where the beams are recombined. The recombined light beam then passes through second optical port 106 via second imaging element 172. Unpolarized light entering second optical port 106 will travel in the opposite direction. Second nonreciprocal rotators 146A-B will direct light along a different optical path towards third optical port 104. This creates optical circulation.

Please replace the paragraph beginning at page 33, line 26 with the following rewritten paragraph:

In this embodiment, the displacement (walk-off) distance d_3 of the light components is determined by the birefringence of the second beam angle turner 1040A and second beam angle turner 1040B. For example, in the case of a YVO_4 wedge pair, assuming the c axis of the YVO_4 is perpendicular to the longitudinal axis of the circulator, the displacement d_3 can be expressed as:

$$d_3 = \frac{1}{2}\, d_4\, Sin2\theta \left(\frac{n_c}{\sqrt{1-(n_c Sin\theta)^2}} - \frac{n_a}{\sqrt{1-(n_a Sin\theta)^2}} \right)$$

where θ is the wedge angle of the second beam angle turner 1040A-B angle, n_a and n_c are the index of refraction and polarization along the a axis and c axis respectively, and d_4 is the length of the complete gap 1036. An advantage of using the preferable birefringent wedge pair that may be formed by second beam angle turners 1040A-B is that the walk-off distance can be adjusted by simply changing the distance between the wedges of the wedge pair, as discussed above. Further, a large walk-off distance can be achieved cost effectively without using long birefringent walk-off crystals.

In the claims:

Please cancel claim 48 and 49.